Prevalence of Mandibular Third Molar Impaction

Ruchi Mitra[1], V K Prajapati[2], Vinayak KM[3], Sonia Nath[1], Nitesh Sharma[1]

ABSTRACT

Introduction: Third molar impaction is the most common impaction found in the oral cavity. Present study aimed to evaluate the prevalence of mandibular third molar impaction and to provide a baseline data.

Material and methods: A descriptive study was carried out in the outpatient department of dentistry RIMS, Ranchi of the patients visiting the department between the age group 17-45 years.

Result: A total of 200 patients were included in the study with males (n=129) and females (n=71). Mesioangular impaction (n=105; 52.5%) was seen as the most common of all mandibular impactions. Distoangular (n=37; 18.5%) and horizontal (n=35; 17.5%) impactions were observed next to mesioangular impaction. Vertical impaction (n=23; 11.5%) was observed the least.

Conclusion: The present study provides a data base for future studies about mandibular impactions.

Keywords: dentistry, impaction, mandibular, prevalence

INTRODUCTION

In early 1954 Mead[1] has defined an impacted tooth as a tooth that is prevented from erupting into position because of malposition, lack of space, or other impediments. Later Peterson[2], characterized impacted teeth as teeth that fails to erupt in the dental arch within the expected time. Farman[3] stated that impacted teeth are those teeth that prevented from eruption due to a physical barrier within the path of eruption. Third molars erupt between the ages of 17 and 21 years.[4] Furthermore, third molar eruption time have been reported to vary with races.[5] For example, mandibular third molars may erupt as early as 14 years of age in Nigerians,[6] and up to the age of 26 years in Europeans. The pattern of Third molar eruption and continuous positional changes after eruption can be related to race, nature of the diet, the intensity of the use of the masticatory apparatus and possibly due to genetic inheritance.[7]

Third molar impactions of mandible is a common condition related with difficulty of extraction and risk of complications, including iatrogenic trigeminal nerve injury. Many theories have been proposed, one of the most commonly stated is insufficient development of the retromolar space.[8] Mandibular third molars eruption at occlusal level in continuity with adjacent tooth also depends on the favorable path of eruption. For example, if the tooth bud is medially angulated during the initial stages of calcification and root development the path of eruption will be unfavourable. Some authors indicates other important third molar impaction causes like the malposition of the tooth germ,[9] hereditary factors,[10] lack of sufficient eruption force for third molars, and the theory of phylogenetic regression of the jaw size which lead to insufficient mesial movement of the dentition.[11]

The present study was undertaken to determine the prevalence of mandibular impaction as no previous study has been done in Jharkhand state. Being the most prestigious government institute RIMS Ranchi, the capital of Jharkhand is the only centre with dental unit in public sector. Hence the present study was undertaken.

MATERIAL AND METHODS

The study was conducted in the department of Dentistry, Rajendra Institute of Medical Sciences Ranchi. The ethical clearance was obtained from the ethical committee in RIMS, Ranchi and the necessary corrections were made thereafter. An informed consent was obtained from the patient. Prior to the start of the study a pilot study was conducted to determine the prevalence of mandibular impaction and sample size was determined. A total of 200 patients were included in the study.

All the patients between age group 17- 45 years attending the outpatient department of dentistry, RIMS were included in the study. Patients with any systemic infections and age below 17 years or above age group 45 years were excluded from the study. Also the patients refusing for the consent were excluded. The angulation and pattern of third molar impaction was diagnosed with the help of IOPA (Intra Oral Periapical Radiograph) and OPG (Orthopantomograph) records of each patient based on Winter's Classification (1926).[3]

STATISTICAL ANALYSIS

The data recorded was precoded and a master chart was prepared. Thereafter, the data was tabulated with mean and percentage and represented in tabular and graphical form. Chi square test was used to find the association and $p \leq 0.05$ was considered as statistically significant.

RESULT

A total of 200 patients were included in the study attending the outpatient department of dentistry RIMS, Ranchi between age group 17-45 years.

Majority of patients were males (M) with age group 21-25 years (n=41) and the least were females (F) of age group ≥ 45 years (Table-1). Mesioangular impaction was seen as the most common of all mandibular impactions with mostly of age group 26-30 years. Distoangular and horizontal impactions were also seen next to mesioangular impaction. Vertical impaction was observed the least (Figure-1)

DISCUSSION

The study showed the pattern of mandibular third molar

[1]Senior Resident, [2]Professor and HOD, Department of Dentistry, Rajendra Institute of Medical Sciences, Ranchi, [3]Senior Lecturer, Department of Oral Pathology, Vananchal Dental College, Garhwa, Jharkhand, India

Corresponding author: Dr Ruchi Mitra, Senior Resident, Department of Dentistry, Rajendra Institute of Medical Sciences, Ranchi, India

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Age group (Years)	Sex		Total	Percentage(%)
	Male	Female		
17-20	13	8	21	10.5%
21-25	41	24	65	32.5%
26-30	27	24	51	25.5%
31-35	32	12	44	22%
36-40	8	1	9	4.5%
41-45	5	1	6	3%
>45	3	1	4	2%
Total			200	100%

Table-1: Distribution of mandibular impactions according to age and sex

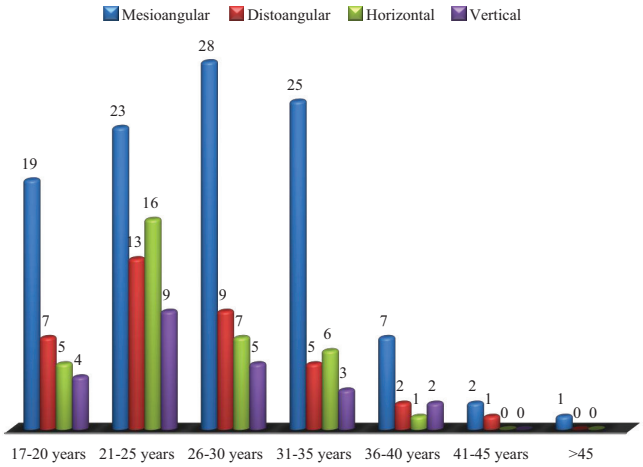

Figure-1: Distribution of mandibular impaction according to type and age group

impactions in patients attending the government hospital, RIMS, Ranchi.

The prevalence of impacted mandibular third molars in the population varies in different studies from 16.7% to 68.6%.[12] Our study shows the prevalence of mandibular third molar impactions of 36% which is consistent with other studies. The female to male ratio of the study group was 1:1.6 (74:132). This distribution is similar to that reported by Nzima,[13] where the female to male ratio was 1:1.5. Contrary to our findings, Venta, et al.[14] and Qirreish[15] have reported that there were more females than males who presented with impacted mandibular third molars. Some studies have reported no sex predilection about third molar impaction.[16]

This study is in agreement with the findings of Nzima (2005),[13] who found that mesioangular impactions were the most predominant type of impaction which was followed by vertical and horizontal impactions. The prevalence of third molar impactions was almost the same on both the left and right sides. (p=0.23) which is similar to other studies.[13,16]

There are many contributing factors to impaction of teeth like delayed eruption of third molars and lack of space on distal side on second molar. However several other factors need to be studied. The present study was based on OPGs and IOPA from hospital record and includes patients visiting the hospital over a period of time. Further longitudinal studies with more emphasis on clinical features and implications together with treatment outcomes need to be carried out.

CONCLUSION

Third molar impaction being the most common between 17-28 years. Patient reports to the dentist complaining pain. Pericoronitis is the most common finding seen among the patients with third molar impaction. Thus the results of the present study can be used as baseline data for future studies involving impacted third molars.

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